

AMENDMENTS TO THE CLAIMS

The following is a complete listing of claims with a status identifier in parentheses. These claims supersede all previous listing of claims.

Listing Of Claims

2-7, 9-11, 13-23. (Cancelled)

24. (New) A fuel bundle for a boiling water reactor, comprising:

- a channel having four sides representing sides of the bundle and having an opening therein,

- a pair of circular-shaped water passages located adjacent to a longitudinal centerline of the channel so as to extend centrally through the channel, the pair of water passages supported by one or more rod supports,

- a plurality of fuel rods including full-length rods and part-length rods arranged as a plurality of concentric fuel-rod rings within the channel around the water passages, the part-length rods further comprising:

- a first part-length rod group consisting of two subsets in a mirror-image, facing relationship to one another, each subset further consisting of three part-length fuel rods in a triangular orientation and directly adjacent to a given side of the pair of water passages so as to face the other subset on the other side of the water passage pair, and

- a second part-length rod group consisting of four pairs of part-length rods, each intermediate-length rod pair centrally located in an outermost ring of the bundle adjacent a corresponding one of the four sides of the channel.

25. (New) The fuel bundle of claim 21, wherein the fuel rods are configured as a 10X10 fuel-rod matrix within the channel.

26. (New) The fuel bundle of claim 21, wherein a plurality of voids are formed above upper ends of each of the part-length fuel rods to the top of the fuel bundle, the voids configured to trap neutrons for improving a shutdown margin for the boiling water reactor.

27. (New) The fuel bundle of claim 21, wherein there are a total of 14 part-length rods therein.

28. (New) A fuel bundle for a boiling water reactor, comprising:

a pair of centrally located, circular-shaped water passages arranged within a 10X10 fuel-rod matrix bounded by four sides of a channel, the fuel rods including full-length and part-length fuel rods,

wherein the 10X10 fuel-rod matrix consists of two, three part-length rod subsets in mirror image relationship with one another, each three-rod subset configured in a triangular orientation and directly adjacent to the pair of water passages so as to face the other subset, and consists of eight additional part-length rods arranged in four pairs, each pair centrally located on an outermost row or column of the matrix nearest a corresponding one of the channel sides.

29. (New) The fuel bundle of claim 28, wherein a plurality of voids are formed above upper ends of each of the part-length fuel rods to the top of the fuel bundle, the voids configured to trap neutrons for improving a shutdown margin for the boiling water reactor.

30. (New) The fuel bundle of claim 28, wherein there are a total of fourteen part-length rods within the 10X10 matrix.

31. (New) A fuel bundle for a boiling water reactor, comprising:

a single, square-shaped water passage located off-center within a 10x10 fuel-rod matrix bounded by four sides of a channel, the fuel rods including full-length and part-length fuel rods,

wherein the 10X10 fuel-rod matrix consists of a first rod group consisting of two pairs of part-length rods arranged on either side of a corner of the square water-passage, and a second rod group consisting of two pairs of part-length rods and at least two non-paired part-length rods, each of the two pairs and the at least two non-paired part-length rods located in a corresponding outermost row or column of the matrix adjacent a corresponding side of the channel.

32. (New) The fuel bundle of claim 31, wherein a plurality of voids are formed above upper ends of each of the part-length fuel rods to the top of the fuel bundle, the voids configured to trap neutrons for improving a shutdown margin for the boiling water reactor.

33. (New) The fuel bundle of claim 31, wherein there are a total of eleven part-length rods within the 10X10 matrix.